

## Section 5-5: Congruent Triangles

**By the end of this lesson, you should be able to answer:**

- How do you use postulates to identify congruent triangles?

**Where you might see this in the real world:**

- Engineering, art, recreation

Define the following terms:

1. Congruent triangles
2. Side-Side-Side Postulate
3. Side-Angle-Side Postulate
4. Angle-Side-Angle Postulate
5. Included angle
6. Included side

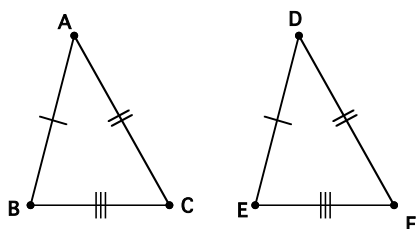
Opening Activity: You will need a protractor and ruler! You will draw two triangles and compare them at the beginning of class tomorrow. Follow directions in the lecture!

In order to see if two triangles are congruent, we need to use one of the triangle congruency postulates listed above. The postulates tell you what is needed to show congruent triangles.

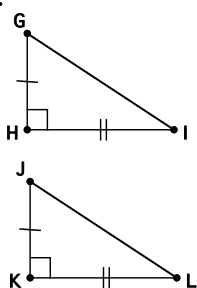
For Side-Side-Side (SSS), we need to have three sets of corresponding sides be congruent. For Side-Angle-Side (SAS), we need two set of corresponding sides congruent, as well as the included angle. For Angle-Side-Angle (ASA), we need congruent corresponding angles, as well as the included side. The abbreviations for these will help us know what we need.

Example 1: State whether each pair of triangles is congruent. If so, name the congruence and the appropriate reason why.

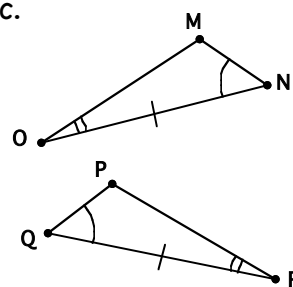
a.



b.



c.



Example 2: Why is it that Angle-Angle-Angle (AAA) does not give congruent triangles?

Example 3:  $\triangle MAN \cong \triangle BOY$ , where  $\overline{MA} = 3$  in,  $\overline{AN} = 5$  in, and  $\overline{YB} = 7$  in.

$m\angle AMN = 37^\circ$  and  $m\angle OYB = 23^\circ$ .

a. Find the lengths of the missing sides.

b. Find the measures of the missing angles.

Problem Set:

*"It is not because things are difficult that we do not dare; it is because we do not dare that they are difficult." - Seneca*